

REMARKS

Status of the Claims

Claims 1 – 15, 20 and new claims 21 and 24 are pending, with claims 1, 20, and 21 being independent. Claims 16 – 19 have been canceled as drawn to non-elected subject matter pursuant to the restriction requirement without prejudice to or disclaimer of the subject matter contained therein. Without conceding the propriety of the rejections, claims 1 – 7, 10, and 20 have been amended to even more clearly recite and distinctly claim the invention. Support for the amendments may be found in the original claims, as well as throughout the specification. New claims 21 – 24 have been added. Support for the new claims may be found in the original claims and throughout the specification including, for example, at page 5, lines 5-27, page 6, lines 5-6, page 18, lines 25-28, and page 13, lines 7-9. Therefore, no new matter has been added.

Applicants respectfully request the Examiner to reconsider and withdraw the outstanding rejections in view of the foregoing amendments and the following remarks.

Claim Rejections under 35 U.S.C. § 112

Claims 3 – 5 are rejected under 35 U.S.C. § 112, second paragraph as allegedly being indefinite. Applicants have amended claims 3 – 5 clarifying the steps recited and clarifying upon which fraction the recited steps are being conducted, thus obviating this rejection. Therefore, Applicants respectfully request withdrawal of the rejection under 35 U.S.C. § 112.

Claim Rejections under 35 U.S.C. § 103(a)

Claims 1 – 3 and 8 are rejected under 35 U.S.C. § 103(a) as being obvious over Stem (U.S. Patent No. 4,622,130). Applicants respectfully disagree with the rejection; therefore, this rejection is respectfully traversed.

Stem relates to an economic series flow de-waxing scheme having a first solvent dewaxing step followed by a catalytic dewaxing step. (Abstract). Stem discloses that

there are four generally accepted methods by which dewaxing can occur, including a combination of solvent dewaxing and catalytic dewaxing procedure whereby first solvent dewaxing occurs followed by catalytic dewaxing (the third method described). (Col. 1, lines 14-28). Stem states that "[t]his invention concerns *only* the third combinative method of dewaxing", i.e., solvent dewaxing followed by catalytic dewaxing. (Col. 1, lines 31-32, emphasis added). As such, Stem discloses that the precise catalytic dewaxing permits economical use of methylisopropyl ketone as a solvent in the solvent dewaxing step. (Col. 4, lines 37-43). As disclosed in Stem and as illustrated in Figure 1, a lubricating oil feed is vacuum distilled into a light lube, a medium lube, and a heavy lube, *all* of which are subjected to *solvent dewaxing followed by catalytic dewaxing*.

In contrast, as recited in claim 1, the process comprises obtaining a first hydrocarbon fraction with a 95% point above 1150° F as measured by ASTM D2887 and a second hydrocarbon fraction with a 95% point below 1150°F as measured by ASTM D2887. The *first hydrocarbon fraction* is subjected to a *Solvent Dewaxing process* to obtain a lube base stock with a VI of greater than or equal to 115 and the *second hydrocarbon fraction* is subjected to a *Catalytic Dewaxing process* with *no Solvent Dewaxing* to obtain a lube base stock having a viscosity less than the viscosity of the lube base stock of step b). Preferably, the first hydrocarbon fraction is subjected to a Catalytic Dewaxing process and a Solvent Dewaxing process; however the second hydrocarbon fraction is subjected to a catalytic dewaxing process with no solvent dewaxing.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP § 2143.

It is respectfully submitted that Stem does not disclose or suggest all the claim limitations of claim 1 or claims dependent thereupon. As described above, Stem discloses vacuum distilling a lubricating oil feed to obtain fractions, *all* of which are subjected to *solvent dewaxing followed by catalytic dewaxing*. It is respectfully

submitted that Stem does not disclose or suggest obtaining a first hydrocarbon fraction with a 95% point above 1150° F as measured by ASTM D2887 and a second hydrocarbon fraction with a 95% point below 1150°F as measured by ASTM D2887. It is further respectfully submitted that Stem does not disclose or suggest subjecting the *first hydrocarbon fraction* to a *Solvent Dewaxing process* to obtain a lube base stock with a VI of greater than or equal to 115 and subjecting the *second hydrocarbon fraction* to a *Catalytic Dewaxing process* with *no Solvent Dewaxing* to obtain a lube base stock having a viscosity less than the viscosity of the lube base stock of step b). In no way does Stem does disclose or suggest obtaining a hydrocarbon fraction and subjecting the hydrocarbon fraction to a catalytic dewaxing process with no solvent dewaxing. Accordingly, Stem does not disclose or suggest all of the elements of claim 1.

It is also respectfully submitted that Stem does not disclose or suggest all the claim limitations of claim 20. As described above, Stem discloses vacuum distilling a lubricating oil feed to obtain fractions, *all* of which are subjected to *solvent dewaxing followed by catalytic dewaxing*.

In contrast, claim 20 recites fractionating a lube base stock feedstock into at least a heavier and a lighter fraction. The fractions are catalytically dewaxed using a Hydroisomerization Dewaxing Catalyst to provide dewaxed lube base stocks. The pour-cloud spreads of the dewaxed lube base stocks are measured and the process is modified to decrease the pour-cloud spreads of the dewaxed lube base stocks if the measured pour-cloud spreads exceed 30°C by adjusting the fractionation cut point, adjusting the fractionation efficiency, Solvent Dewaxing the dewaxed lube base stocks, adsorbent treating the lube-base stocks, or combinations thereof, whereby the process produces lube base stocks having a pour point between -15 and -40°C, a VI above 115, a cloud point of less than -10°C, and a sulfur content of less than 300 ppm.

Applicants respectfully submit that in no way does Stem disclose or suggest fractionating a lube base stock feedstock into at least a heavier and a lighter fraction; catalytically dewaxing the fractions using a Hydroisomerization Dewaxing Catalyst to provide dewaxed lube base stocks; measuring the pour-cloud spreads of the dewaxed lube

base stocks and then modifying the process to decrease the pour-cloud spreads of the dewaxed lube base stocks if the measured pour-cloud spreads exceed 30°C by adjusting the fractionation cut point, adjusting the fractionation efficiency, Solvent Dewaxing the dewaxed lube base stocks, adsorbent treating the lube base stocks, or combinations thereof, whereby the process produces lube base stocks having a pour point between -15 and -40°C, a VI above 115, a cloud point of less than -10°C, and a sulfur content of less than 300 ppm.

As recited in claim 20, the fractions are catalytically dewaxing using a Hydroisomerization Dewaxing Catalyst; the pour-cloud spreads of the dewaxed lube base stocks are measured, and *only if* the pour-cloud spreads of the dewaxed lube base stocks exceed 30°C is the process modified. Among the options for modifying the process is solvent dewaxing the lube base stocks. Accordingly, only if the pour-cloud spreads of the dewaxed lube base stocks exceed 30°C are the dewaxed lube base stocks then subjected to solvent dewaxing; therefore, the solvent dewaxing follows the hydroisomerization dewaxing.

In no way does Stem disclose or suggest *measuring the pour-cloud spreads* of the dewaxed lube base stocks and then *modifying the process* to decrease the pour-cloud spreads of the dewaxed lube base stocks if the measured pour-cloud spreads *exceed 30°C*. Stem does not disclose or suggest appropriate pour-cloud spreads or relevance of pour-cloud spread. In addition, in no way does Stem disclose or suggest the hydroisomerization dewaxing fractions *followed by* solvent dewaxing. Stem discloses that the use of methylisopropyl ketone in the solvent dewaxing step produces a solvent dewaxed effluent that may then be readily catalytically dewaxed. (Abstract).

Accordingly, the order of the steps may not merely be reversed. Furthermore, in no way does Stem disclose or suggest *measuring the pour-cloud spreads* of the dewaxed lube base stocks and, only if the pour-cloud spread of the dewaxed lube base stocks exceed 30°C, then subjecting the hydroisomerization dewaxed lube base stock to solvent dewaxing. Accordingly, Stem does not disclose or suggest all of the elements of claim 20.

It is respectfully submitted that Stem does not disclose or suggest all the claim limitations of claim 21 or claims dependent thereupon. As described above, Stem discloses vacuum distilling a lubricating oil feed to obtain fractions, *all* of which are subjected to *solvent dewaxing followed by catalytic dewaxing*.

In contrast, claim 21 recites providing a Fischer Tropsch waxy feedstock, and fractionating the Fischer Tropsch waxy feedstock into a first hydrocarbon fraction, having a 95% point above 1150° F as measured by ASTM D2887 and a pour-cloud spread of greater than 30°C, and a second hydrocarbon fraction, having a 95% point below 1150°F as measured by ASTM D2887 and a pour-cloud spread of approximately 7°C or less. The first hydrocarbon fraction is subjected to a Hydroisomerization Dewaxing process and Solvent Dewaxing process to obtain a lube base stock with a VI of greater than or equal to 115. The second hydrocarbon fraction is subjected to a Hydroisomerization Dewaxing process with no Solvent Dewaxing to obtain a lube base stock having a viscosity less than the viscosity of the lube base stock of step b.

It is respectfully submitted that Stem does not disclose or suggest providing a Fischer Tropsch waxy feedstock, and fractionating the Fischer Tropsch waxy feedstock into a *first hydrocarbon fraction*, having a 95% point *above 1150° F* and a *pour-cloud spread* of *greater than 30°C*, and a *second hydrocarbon fraction*, having a 95% point *below 1150°F* and a *pour-cloud spread* of approximately *7°C or less*. It is further respectfully submitted that Stem does not disclose or suggest subjecting the *first hydrocarbon fraction* to a Hydroisomerization Dewaxing process and Solvent Dewaxing process to obtain a lube base stock with a VI of greater than or equal to 115 and subjecting the *second hydrocarbon fraction* to a *Catalytic Dewaxing process* with *no Solvent Dewaxing* to obtain a lube base stock having a viscosity less than the viscosity of the lube base stock of step b). Accordingly, Stem does not disclose or suggest all of the elements of claim 21.

Claims 4-7, 9-13, and 20 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Stem in view of Santilli (U.S. Patent No. 5,282,958). Applicants respectfully disagree with this rejection; therefore, this rejection is traversed.

As described above, Stem discloses vacuum distilling a lubricating oil feed to obtain fractions, *all* of which are subjected to *solvent dewaxing followed by catalytic dewaxing*.

Santilli relates to a process for dewaxing a hydrocarbon feed to produce a dewaxed lube oil using an intermediate pore size molecular sieve catalyst. Santilli discloses that the feeds for use in the process may be partially dewaxed to an intermediate pour point by a conventional catalytic dewaxing process or solvent dewaxing process. (Col. 8, lines 19-25). The Examiner cites Santilli as disclosing a complete catalytic hydroisomerization dewaxing process.

As described above, claim 1 recites a process for preparing lube base stocks. Claims 4-7 are dependent upon claim 1 and thus recite further limitations.

It is respectfully submitted that even if there were some suggestion or motivation to combine Stem and Santilli and a reasonable expectation of success, Stem and Santilli even when combined do not disclose or suggest all the claim limitations of claim 1 or claims dependent thereupon. As described above, the process of Stem for preparing lubricant base stocks is significantly different than the process as recited in claim 1. Applicants respectfully submit that Santilli does not disclose or suggest any process conditions or steps that would supplement Stem to produce the process as recited in claim 1.

Neither Stem nor Santilli discloses or suggests obtaining a first hydrocarbon fraction with a 95% point above 1150° F as measured by ASTM D2887 and a second hydrocarbon fraction with a 95% point below 1150°F as measured by ASTM D2887. It is further respectfully submitted that neither Stem nor Santilli discloses or suggests subjecting the *first hydrocarbon fraction* to a *Solvent Dewaxing process* to obtain a lube base stock with a VI of greater than or equal to 115 and subjecting the *second hydrocarbon fraction* to a *Catalytic Dewaxing process* with *no Solvent Dewaxing* to obtain a lube base stock having a viscosity less than the viscosity of the lube base stock of step b).

Therefore, it is respectfully submitted that even if Stem and Santilli are combined, the resulting combination does not produce all of the claim limitations.

As described above, claim 20 recites a process for preparing lube base stocks having pour-cloud spreads less than 30°C.

It is respectfully submitted that even if there were some suggestion or motivation to combine the cited art and a reasonable expectation of success, the cited art when combined does not disclose or suggest all the claim limitations of claim 20. As described above, the process of Stem for preparing lubricant base stock is significantly different than the process as recited in claim 20. Applicants respectfully submit that Santilli does not disclose or suggest any process conditions or steps that would supplement Stem to produce the process as recited in claim 20.

Neither Stem nor Santilli discloses or suggests fractionating a lube base stock feedstock into at least a heavier and a lighter fraction; catalytically dewaxing the fractions using a Hydroisomerization Dewaxing Catalyst to provide dewaxed lube base stocks; measuring the pour-cloud spreads of the dewaxed lube base stocks and then modifying the process to decrease the pour-cloud spreads of the dewaxed lube base stocks if the measured pour-cloud spreads exceed 30°C by adjusting the fractionation cut point, adjusting the fractionation efficiency, Solvent Dewaxing the dewaxed lube base stocks, adsorbent treating the lube base stocks, or combinations thereof, whereby the process produces lube base stocks having a pour point between -15 and -40°C, a VI above 115, a cloud point of less than -10°C, and a sulfur content of less than 300 ppm.

As recited in claim 20, the fractions are catalytically dewaxing using a Hydroisomerization Dewaxing Catalyst; the pour-cloud spreads of the dewaxed lube base stocks are measured, and only if the pour-cloud spreads of the dewaxed lube base stocks exceed 30°C is the process modified. Among the options for modifying the process is solvent dewaxing the lube base stocks. Accordingly, only if the pour-cloud spreads of the dewaxed lube base stocks exceed 30°C are the dewaxed lube base stocks then subjected to solvent dewaxing; therefore, the solvent dewaxing follows the hydroisomerization dewaxing.

Neither Stem nor Santilli discloses or suggests *measuring the pour-cloud spreads* of the dewaxed lube base stocks and then *modifying the process* to decrease the pour-

cloud spreads of the dewaxed lube base stocks if the measured pour-cloud spreads *exceed 30°C*. In addition, neither Stem nor Santilli discloses or suggests appropriate pour-cloud spreads or relevance of pour-cloud spread. Furthermore, neither Stem nor Santilli discloses or suggests hydroisomerization dewaxing fractions *followed by* solvent dewaxing. Moreover, neither Stem nor Santilli discloses or suggests *measuring the pour-cloud spreads* of the dewaxed lube base stocks and, only if the pour-cloud spread of the dewaxed lube base stocks exceed 30°C, then subjecting the hydroisomerization dewaxed lube base stock to solvent dewaxing.

Accordingly, it is respectfully submitted that even if Stem and Santilli are combined, the resulting combination does not produce all of the claim limitations.

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Stem and Santilli further in view of Francisco (U.S. Patent No. 5,898,023). Applicants respectfully disagree with this rejection; therefore, this rejection is traversed.

As described above, Stem discloses vacuum distilling a lubricating oil feed to obtain fractions, *all* of which are subjected to *solvent dewaxing followed by catalytic dewaxing*. The Examiner cites Santilli as disclosing a complete catalytic hydroisomerization dewaxing process. The Examiner cites Francisco as disclosing a process of combining additives with a lube oil.

As described above, claim 1 recites a process for preparing lube base stocks. Claims 14 and 15 are dependent upon claim 1 and thus recite further limitations.

It is respectfully submitted that even if there were some suggestion or motivation to combine the cited art and a reasonable expectation of success, the cited art even when combined does not disclose or suggest all the claim limitations of claim 1 or claims dependent thereupon. As described above, the process of Stem for preparing lubricant base stocks is significantly different than the process as recited in claim 1. Applicants respectfully submit that Santilli and Francisco do not disclose or suggest any process conditions or steps that would supplement Stem to produce the process as recited in claim 1.

None of Stem, Santilli, or Francisco discloses or suggests obtaining a first hydrocarbon fraction with a 95% point above 1150° F as measured by ASTM D2887 and a second hydrocarbon fraction with a 95% point below 1150°F as measured by ASTM D2887. It is further respectfully submitted that none of Stem, Santilli, or Francisco discloses or suggests subjecting the *first hydrocarbon fraction* to a *Solvent Dewaxing process* to obtain a lube base stock with a VI of greater than or equal to 115 and subjecting the *second hydrocarbon fraction* to a *Catalytic Dewaxing process* with *no Solvent Dewaxing* to obtain a lube base stock having a viscosity less than the viscosity of the lube base stock of step b).

Therefore, it is respectfully submitted that even if Stem, Santilli, and Francisco are combined, the resulting combination does not produce all of the claim limitations.

Accordingly, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 103(a).

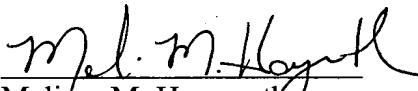
Conclusion

Without conceding the propriety of the rejections, the claims have been amended, as provided above, to even more clearly recite and distinctly claim particularly preferred embodiments of Applicants' invention and to pursue an early allowance. For the reasons noted above, the art of record does not disclose or suggest the inventive concept of the present invention as defined by the claims.

In view of the foregoing remarks, reconsideration of the claims and allowance of the subject application is earnestly solicited. The Examiner is invited to contact the undersigned at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted,

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